

### REMARKS

Claims 1-46 were pending, in which claims 1, 18, 19, 21, 28, 29, 41, 45 and 46 are independent. Independent claims 1, 18, 19, 21, 28, 29, 41, 45 and 46 have been amended. Dependent claims 47 and 48 have been added. As such, claims 1-48 are pending and no new matter has been added by way of these amendments. Favorable reconsideration of the action mailed on September 21, 2007 is respectfully requested in view of the following comments of the Applicant, which are preceded by related comments of the Examiner in small bold type:

#### **Claim Rejections - 35 USC § 102**

**Claims 1-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Riis et al, "Multilingual Text-to-Phoneme Mapping," Proceedings of the Eurospeech 2001 Conference.**

Independent claim 1, as amended, calls for calculating an acoustic subword model for each subword unit, based on the pronunciations in a plurality of sets of training words, by *mixing distributions of acoustic parameters from multiple languages* when a subword unit is common to two or more languages.

Riis et al (hereinafter "Riis") is not understood to disclose or suggest features of independent claim 1. In particular, Riis is not understood to disclose or suggest calculating an acoustic subword model for each subword unit, based on the pronunciations in a plurality of sets of training words, by mixing distributions of acoustic parameters from multiple languages when a subword unit is common to two or more languages.

In contrast, Riis describes a speech recognition system based on "branched grammar decoding." (Riis, Section 3.) In this system, "multiple, alternative phoneme symbols" may be used to represent subword units that are pronounced differently in different languages. (*Id.*) Thus, the branched grammar system maintains multiple acoustic models for some subword units or phonemes that are separately compared to an utterance that is processed for recognition. While Riis does note that in certain embodiments its system may be capable of recognizing utterances that "are a mixture of several different pronunciations," the term mixture here is being used to describe the user utterance that is input to the recognition system, not the process of determining acoustic models. This is a different approach to multilingual speech recognition. By way of example only, a potential advantage to an approach that "[mixes] distributions of

acoustic parameters from multiple languages when a subword unit is common to two or more languages,” is reduction of memory and processing cycles that would otherwise be needed to represent multiple acoustic models for a subword unit and search through a resulting larger set of acoustic representations of words in a recognition vocabulary.

Riis does not disclose mixing distributions of acoustic parameters from multiple languages. For at least this reason, the applicant respectfully submits that Riis does not anticipate claim 1, and claim 1, as amended, is allowable.

Similarly, independent claim 18, as amended, requires using the mapping of sequences of sound to estimated pronunciations to generate acoustic subword models for the subword units in a grouping of subwords, by *mixing distributions of acoustic parameters from multiple languages* when a subword unit is common to two or more languages. (claim 18.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 18. The applicant respectfully submits that claim 18 is allowable as currently amended.

Similarly, independent claim 19, as amended, requires determining an acoustic word model for each of the words in a recognition vocabulary by mapping subword units in the estimated pronunciation to acoustic subword models, at least some of which *comprise a mix of distributions of acoustic parameters from multiple languages*, and combining the acoustic subword models. (claim 19.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 19. The applicant respectfully submits that claim 19 is allowable as currently amended.

Similarly, independent claim 21, as amended, requires causing a processing device to calculate an acoustic subword model for each subword unit, based on the pronunciations in a plurality of sets of training words, by mixing distributions of acoustic parameters from multiple languages when a subword unit is common to two or more languages. (claim 21.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 21. The applicant respectfully submits that claim 21 is allowable as currently amended.

Similarly, independent claim 38, as amended, requires causing a processing device to use a mapping of sequences of sound to estimated pronunciations to generate acoustic subword models for the subword units in a grouping of subwords, by mixing distributions of acoustic parameters from multiple languages when a subword unit is common to two or more languages.

(claim 38.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 38. The applicant respectfully submits that claim 38 is allowable as currently amended.

Similarly, independent claim 39, as amended, requires causing a processing device to determine an acoustic word model for each of the words in a recognition vocabulary by mapping subword units in the estimated pronunciation to acoustic subword models, at least some of which comprise a mix of distributions of acoustic parameters from multiple languages, and combining the acoustic subword models. (claim 39.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 39. The applicant respectfully submits that claim 39 is allowable as currently amended.

Similarly, independent claim 41, as amended, requires a means for calculating an acoustic subword model for each subword unit, based on the pronunciations in a plurality of sets of training words, by mixing distributions of acoustic parameters from multiple languages when a subword unit is common to two or more languages. (claim 41.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 41. The applicant respectfully submits that claim 41 is allowable as currently amended.

Similarly, independent claim 45, as amended, requires a means for using a mapping of sequences of sound to estimated pronunciations to generate acoustic subword models for the subword units in a grouping of subwords, by mixing distributions of acoustic parameters from multiple languages when a subword unit is common to two or more languages. (claim 45.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 45. The applicant respectfully submits that claim 45 is allowable as currently amended.

Similarly, independent claim 46, as amended, requires a means for determining an acoustic word model for each of the words in a recognition vocabulary by mapping subword units in the estimated pronunciation to acoustic subword models, at least some of which comprise a mix of distributions of acoustic parameters from multiple languages, and combining the acoustic subword models. (claim 46.) For at least the same reasons described above in relation to claim 1, Riis does not anticipate claim 46. The applicant respectfully submits that claim 46 is allowable as currently amended.

The dependent claims 2-17, 20, 22-37, 40, 42-44, and 47-48 are allowable at least for the reasons discussed in their respective independent claims. Although it is believed that the dependent claims define patentably distinct features, given the distinctiveness of the respective independent claims, the dependent claims are not discussed here in detail.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing remarks, the entire application is now believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's attorney can be reached at the address shown below. Telephone calls regarding this application should be directed to 617-521-7075.

\$100 for the required excess claims fee and \$1050 for the Petition for Extension of Time fee is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account Authorization. Please apply any other charges or credits to deposit account 06-1050, referencing attorney docket no. 10663-018001.

Respectfully submitted,

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